

ADDITIONS TO THE FISH-FAUNA OF LORD HOWE ISLAND.
No. 5.⁽¹⁾

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[*Contribution from the Australian and South Australian
Museums.*]

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PLATES XL. TO XLIII.

Since the "Catalogue of the Fishes of Lord Howe Island" was published,⁽²⁾ a number of new and otherwise interesting species have been forwarded by residents of the island. Some of these are dealt with in the following pages, together with a small collection which was recently obtained for the South Australian Museum by Mr. A. M. Lea during a collecting expedition to Norfolk and Lord Howe Islands. We have also again examined some specimens of which the earlier identifications appeared incorrect, and submit additional notes upon them.

Much of this material has been forwarded at intervals to the Australian Museum by Mrs. Thomas Nichols, who has contributed so much to our knowledge of the island fauna. Other striking species were secured by Mr. P. R. Pedley, who is also interesting himself in the fauna of the island.

Family LEPTOCEPHALIDAE.

Genus CONGERMURAENA, Kaup.

Congermuraena, Kaup.: Cat. Apod. Fish. Brit. Mus., 1856, p. 108 (*C. habenatus*, Richardson); Ogilby: Proc. Linn. Soc. N.S. Wales, xxiii., 1898, p. 284.

This genus apparently differs from *Leptocephalus* only in having granular instead of sharp vomerine teeth, and in having the muciferous system of the head rather more developed. The dorsal fin originates well forward above the head or just behind the vertical of the pectoral fin, but this condition is not a generic character, since the fin commences equally far forward in some species of *Leptocephalus*.

(1) For No. 4 see Waite: Rec. Austr. Mus., v., pt. 3, 1904, p. 135.

(2) Waite: *loc. cit.*, p. 187.

CONGERMURAENA HOWENSIS, n. sp.

Pl. xl. fig. 2.

Congermuraena mellissii, Ogilby: Mem. Austr. Mus., ii., 1889, p. 72 (not *C. mellissii*, Günther).

Congrellus gilberti, Ogilby: Proc. Linn. Soc. N.S. Wales, xxiii., 1898, p. 288 (part, Lord Howe Island specimens); Waite: Rec. Austr. Mus., v., 1904, p. 189.

Head 1.5-1.6 in the trunk. Head and trunk 1.2-1.4 in the tail. Eye 1.3-1.4 in the snout, and 4.9-5.7 in the head. Snout 3.4-4.3, pectoral 3.0-3.3, and depth of body 2.7-3.2 in the head.

Body somewhat compressed, the head and trunk shorter than the tail. Head large, conically pointed anteriorly. Snout longer than the eye, and projecting beyond the lower jaw. Eyes large, separated by a narrow interorbital space. Gape of mouth extending backward almost to below the middle of the eye, with distinct but not fleshy lips. Anterior nostril in a short tube near the margin of the mouth: snout with large open pores with raised margins. A series of widely-spaced pores crosses the upper-surface of the head behind the eyes to beyond the angle of the mouth, where it divides, one branch following the upper lip while the other extends along the mandible: a second series crosses the nape and curves downward behind the preopercular portion of the head. *Teeth*.—Premaxillary teeth acicular, slender, and acute, and arranged in several rows. Maxillary teeth similar, in three or four rows anteriorly, becoming uniserial posteriorly. Anterior vomerine teeth acicular, becoming granular on the shaft, where they are arranged in two or three irregular rows; they do not extend backward to the vertical of the anterior margin of the eye. Mandibular teeth acicular, in several rows anteriorly, becoming uniserial posteriorly; the inner ones are smaller, stouter, and more granular than the others.

Fins.—Dorsal commencing well in front of the gill-opening. Pectoral slender, with about fourteen rays, the upper of which are longest.

Lateral line commencing on the operculum, slightly arched anteriorly, thence gradually descending to the median line of the body.

Colour.—Brown in alcohol, light-olive in formaline. Head with distinct darker cross-bands: the first covers the snout, but leaves the nostrils and larger pores and the lips white; the second crosses the interorbital space and forms a dark patch beneath the eye; the third extends across the nape and preopercular portion of the head; and the fourth crosses the neck and opercles. Dorsal, anal, and caudal fins with narrow black borders.

Described from three specimens 143, 283, and 347 mm. long; the smaller, being preserved in formaline and exhibiting characters not shown in the larger spirit specimens, is figured. They apparently differ from all described species of *Conger muraena* in having the dorsal fin originating over the operculum.

Loc.—Lord Howe Island.

Family LABRACOGLOSSIDAE.

Genus LABRACOGLOSSA, Peters.

LABRACOGLOSSA NITIDA, n. sp.

Pl. xli., fig. 2.

D. x. 26-28; A. iii. 23-24; P. 21-22; V. i. 5; C. 17; L. lat. 72-75; L. tr. 10-11, 19.

Depth 3.3 in the length to the hypural joint; head 3.9 in the same. Eye slightly longer than the snout, 4.0 in the head. Interorbital width greater than the diameter of the eye, equal to that of the orbit and 3.2 in the head. Median dorsal spines subequal to the anterior dorsal and anal spines, 2.4 in the head.

Body fusiform, moderately compressed, the upper and lower profiles almost equally convex. Snout rather obtuse; nostrils close together, small, sublateral, placed near the orbital margin. Eye partly covered by a thick adipose lid, situated in the anterior half of the head. Mouth oblique, the maxillary reaching back to below the anterior portion of the pupil. Preorbital narrow, entire, not covering the maxillary. Preoperculum broadly rounded, the surface of its border striated, the striae forming fine crenulations on its margin. Operculum with a very small spine.

Teeth.—A single row of short conical teeth in the upper jaw, behind which is a band of microscopic ones anteriorly on each side of the symphysis. Mandible with a band of minute teeth anteriorly, merging into a single series of small stout teeth on the sides. A large patch of microscopic teeth covers the head of the vomer, from each side of which a narrow band extends backward on the palatines; commencing evenly with the termination of the latter is a very broad, elongate band on each mesopterygoid. Tongue largely covered by a broad patch of similar teeth. Gill-rakers long and slender, about twenty-six on the lower limb of the first arch: the longest two-thirds as long as the snout.

Scales cover the greater part of the head, extending forward to the nostrils; they are present on the cheeks, opercles, and lower jaw, and a few occur on the maxillary. Body covered with rather small, ctenoid scales, which have broad

rough margins, and their exposed surfaces coarsely striate. They form a low sheath at the base of the spinous dorsal, and cover the membranes of the soft dorsal and anal; they also extend over the basal half of the caudal, and portion of the pectoral. Lateral line scarcely arched, formed of simple tubercles, which extend on to the caudal base.

Fins.—Dorsal commencing well behind the vertical of the ventral. Its spines are slender, and increase rapidly in length to the fifth, after which they become slightly shorter to the last: the dorsal rays decrease regularly in length backward. Anal commencing beneath the third dorsal ray; its spines increase in length backward, the third being two-thirds as long as the first ray; soft anal similar in form to the dorsal. Caudal deeply forked. Fifth upper pectoral ray longest. Ventrals not nearly reaching the vent.

Colour.—After long preservation in formaline, the general colour is brown above, lighter below. A light-coloured area commences above the shoulder and extends backward to the caudal fin, and covers the greater part of the back above the lateral line. It is defined anteriorly and below by a dark-bluish area, which commences behind the eye. Dorsal and anal fins dusky, the latter with a light edge. An ill-defined dark spot at the base of the pectoral.

Described from five specimens, 134-154 mm. long measured from the snout to the end of the middle caudal rays. They differ from *L. argenteiventris*, Peters, in having smaller scales and ten instead of eleven dorsal spines.

Loc.—Four of the specimens were collected for the Australian Museum by Mrs. T. Nichols at Lord Howe Island. The other was secured at Norfolk Island by Mr. George E. Nobbs.

Family LUTIANIDAE.

Genus PARACAESIO, Bleeker.

PARACAESIO PEDLEYI, n. sp.

Pl. xlii.

D. x. 10; A. iii. 8; P. 17; V. i. 5; C. 17; L. lat. 71; L. tr., from first dorsal spine, 10, 1, 20.

Head 3.6, and depth of body 2.9 in the length to the hypural joint. Eye almost as long as the snout, 1.5 in the interorbital space, and 4.0 in the head. Interorbital space 2.5, snout 3.6, and depth of caudal peduncle 3.0 in the head. Third dorsal spine 1.4 in the head, and 1.3 longer than the last. Penultimate dorsal ray 2.0, third anal spine 3.3, and penultimate anal ray 2.1 in the head. Pectoral 0.1 longer than the head.

Body moderately elongate, compressed, the dorsal and anal profiles almost evenly rounded. Head tumid, the interorbital space high and arched. Eye a little above the middle line of the head. Maxillary reaching backward to below the anterior portion of the eye, only partly covered by the preorbital, which is entire and not so broad as the maxillary. Preopercular margin sinuous but not serrated, the hinder limb subvertical, the angle rounded. Operculum with a flat spine. Nostrils minute, close together, midway between the anterior margin of the eye and the tip of the snout.

Teeth.—Premaxillaries with several short stout canines anteriorly and on the sides, which are followed by a narrow band of villiform teeth. Mandible with a few canines anteriorly and a band of villiform teeth. Vomer with a small patch of villiform teeth; similar teeth are also present on the anterior portions of the palatines. Tongue smooth.

Scales cycloid, of moderate size, largest on the anterior portion of the sides. They extend forward on the upper surface of the head to above the anterior portion of the eye; thence they are defined by a series curving backward to the suprascapular, which is covered with small muciferous canals. Some large scales are placed on the sides of the nape and are connected with those on the cheeks and opercles. Seven rows on the cheeks, leaving a broad area on the limb of the preoperculum naked. All the rest of the head naked, the skin on the snout and upper part of the head pitted with minute pores. Small scales cover the base of the pectoral fin and a large part of the caudal, but they are not present on the membrane of the dorsal and anal fins. Lateral line but little arched, extending on to the middle of the caudal peduncle, and consisting of simple tubules.

Fins.—Dorsal originating slightly behind the vertical of the ventrals; the third spine is the longest, and with those on each side of it forms an elevated lobe; the posterior spines are subequal in length and scarcely shorter than the first rays; the rays increase in length backward to the second last. Anal originating below the anterior part of the soft dorsal and terminating a little behind it; the first spine is short, the second and third subequal and as long as the anterior rays. Pectoral falcate, reaching to the vertical of the first anal spine. Caudal strongly forked.

Colour.—General colour cerulean-blue and lemon-yellow. The yellow colour covers the tail and greater portion of the caudal peduncle, and extends forward on the supralateral portion of the body to a point in advance of the origin of the dorsal. The anterior part of the body is blue, and this colour extends backward along the back below the dorsal fin, and

on the side to the lower base of the caudal. Abdominal surface silver shot with blue. Head dark above, light-blue on the cheeks and opercles. A dark band crosses the body between the middle of the spinous dorsal and the abdomen, which consists largely of the very broad blackish margins to the scales. Spinous dorsal dark, the membrane between its fourth and ninth spines being almost black; soft dorsal dusky anteriorly, becoming lighter backwards. Anal hyaline-blue, pectorals hyaline, ventrals bluish-white basally, the rays becoming blackish towards the tips.

Described and figured from a specimen 336 mm. long from the snout to the end of the middle caudal rays. It was collected by Mr. P. R. Pedley, to whom the Trustees of the Australian Museum are indebted for many valuable specimens.

This species has the general characteristics of *P. xanthurus*, Bleeker,⁽³⁾ but may be at once distinguished by the form of the spinous dorsal and by the distribution of its colours.

Family KYPHOSIDAE.

Genus KYPHOSUS, Lacépède.

KYPHOSUS FUSCUS (Lacépède), Günther.

Pimlepterus fuscus, Günther: Jour. Mus. Godeff., ii., 1873, p. 68.

Four specimens are preserved in the Australian Museum from Lord Howe Island and two from Norfolk Island. One of the latter is an incipient albino, being of a light-yellow colour instead of dark-brown, with darker yellow stripes along each row of scales. It is perhaps identical with the "Guinea-fish" of Lord Howe Island, which has been very rarely observed.⁽⁴⁾

Family SCORPIDIDAE.

Genus ATYPICHTHYS, Günther.

ATYPICHTHYS LATUS, n. sp.

Pl. xl., fig. 3.

D. xi.-xii. 14-15: A. iii. 13-15: P. 15-16: V. i. 5; C. 17.

Scales in 70-75 rows between the suprascapular and the hypural joint; 12-13 scales between the lateral line and the middle of the spinous dorsal, excluding the dorsal sheath. Depth 2.04-2.1 in the length to the hypural joint; head 3.2-3.4 in the same. Eye longer than the snout, 2.5-2.8 in the head. Snout 1.2-1.5 in the eye, and 3.5-4.0 in the head; its length is

(3) Bleeker: Res. Faun. Madagascar, Poiss., 1878, p. 37, pl. xi.

(4) Waite: Rec. Austr. Mus., v. 3, 1904, p. 167.

a little less than the interorbital width, which is 2.9-3.5 in the head. Fifth dorsal spine 1.6-1.8, and second anal spine 1.8-2.1 in the head.

Colour.—Yellow, with six broad longitudinal brown stripes on the body; on the upper half these are much broader than the light interspaces, and in large specimens the three upper ones may each be divided into two. Head with similar stripes, most of which do not connect with those of the body, being separated from them by a light transverse bar on each side of the nape.

This species is very similar to *A. strigatus*, Günther, but is deeper, and has usually twelve instead of eleven dorsal spines. The stripes on the body are broader, and an extra one is developed in *A. latus*, while they are not all connected with those of the head, as in *A. strigatus*. In all other details, the two species are very similar.

This definition is drawn up from four specimens in the Australian Museum collection, 105-218 mm. long from the snout to the end of the middle caudal rays. A specimen 212 mm. in length is selected as the type.

Loc.—The two smaller examples, including that figured, were obtained at Norfolk Island, where Mr. Lea also took specimens, while seven larger ones were secured at Lord Howe Island, together with examples of *A. strigatus*.

SCORPIS VIOLACEUS, Hutton.

Hard-bellied Blue Fish.

Ditrema violacea, Hutton: Trans. N. Zeal. Inst., v., 1873, p. 261, pl. viii., fig 31b.

Scorpis aequipinnis, Ogilby: Mem. Austr. Mus., ii., 1889, p. 56; Ogilby: Proc. Linn. Soc. N.S. Wales, (2), ii., 1887, p. 992; Waite: Trans. N. Zeal. Inst., xlii., 1910, p. 381 (not of Richardson).

Caesiosoma aequipinnis, Waite: Rec. Austr. Mus., v., 1904, pp. 167, 206.

An examination of a series of specimens of *Scorpis* shows that several well-differentiated species have been united under the name *S. aequipinnis*. Richardson's species has very small scales, there being more than 100 series above the lateral line, and it is confined to South and South-western Australia. The New South Wales form is *S. lineolata*, Kner., while specimens from Lord Howe Island and Norfolk Island are apparently referable to *S. violaceus*. Larger specimens of the last-named species are readily distinguished from those of *S. lineolata*, by their much more convex interorbital area and their smaller eye, while seven specimens have x. 27-29 spines and rays in the dorsal fin, and iii. 25-27 in the anal.

Family POMACENTRIDAE.

Genus GLYPHISODON, Lacépède.

GLYPHISODON SORDIDUS, Forskal.

Pl. xl., fig. 1.

Chaetodon sordidus, Forskal: Descr. Anim., 1775, p. 62.*Glyphidodon leucopleura*, Day: Fish. India, 1877, p. 385, pl. lxxxiii., fig. 4.*Glyphidodon sordidus*, Waite: Mem. Austr. Mus., iii., pt. 3, 1897, p. 192.D. xiii. 16; A. ii. 15-16; P. 19; V. i. 5; C. 15; L. lat. 22; L. tr. $4\frac{1}{2}$, 1, 14.

Twenty-eight scales between the operculum and the hypural joint, and three and a half between the back and the lateral line below the median dorsal spines. Body short and deep, narrower in the young, its depth 1.6-1.8 in the length to the hypural joint; head 2.6-2.8 in the same. Eye 2.5-3.3 in the head. Fifth dorsal spine 1.7-1.9, fourth dorsal ray 1.4-1.7 in the head.

Body with five dark cross-bands, which are broader than the interspaces between them. The first is indistinct, and crosses the back before the dorsal fin. The second and third descend from a large black blotch on the dorsal fin which covers the membrane between the second and seventh spines; these bands are darker than the others, and may be coalescent on the back. The fourth band is placed below the tenth to twelfth spines, and the fifth below the anterior rays. A large, rounded, black spot on the upper anterior portion of the caudal peduncle extends forward a little below the posterior dorsal rays. Upper base of the pectoral fin with a distinct black spot. Outer ventral ray dusky, as is the anterior portion of the soft dorsal and the greater part of the anal.

The above definition is based on three specimens 34, 45, and 74 mm. long, the largest of which is figured. They are apparently identical with *G. sordidus*, Forskal, having the body short and deep, with $3\frac{1}{2}$ series of supralateral scales, and a striking black spot on the caudal peduncle, features which are characteristic of that species.

Synonymy.—A critical comparison of these specimens with one of the types of *G. leucopleura*, Day, which is preserved in the Australian Museum, convinces us that they are identical with that species also. Day's example is only 36 mm. long, and is in very bad condition, but sufficient of its characters are retained to leave no doubt of its authenticity: it agrees much better with his description than with his figure, however, and suggests the latter is inaccurate in both the form of its fins and the disposition of its colour-marking. Day has described a "dark, almost black, band from the first half of

the dorsal fin descending to the ventral," but this is apparently formed of the second and third bands, which, as our specimens show, are sometimes partly united and darker than the others.

Loc.—Our smallest example (34 mm.) was collected in a rock-pool at Lord Howe Island.⁽⁵⁾ Mr. Lea obtained seven specimens at Norfolk Island. Another (45 mm.) was secured at Funafuti, Ellice Group. Two others, including the largest figured specimen (74 mm.) were obtained in the New Hebrides.

Family LABRIDAE.

Genus THALASSOMA, Swainson.

THALASSOMA PURPUREUM, Forskal.

Julis trilobata, Ogilby: Mem. Austr. Mus., ii., 1889, p. 68; *Thalassoma trilobatum*, Waite: Rec. Austr. Mus., v., 1904, pp. 171, 209 (not *Labrus trilobatus*, Lacépède).

Julis purpurea (Forskal), Günther: Jour. Mus. Godeff., xvi. (Fische der Sudsee, viii.), 1909, p. 272, pl. cxlix., fig. a; *Thalassoma purpureum*, Jordan and Evermann: Bull. U.S. Fish. Comm., xxiii., 1, 1905, p. 295.

Julis umbrostigma (Rüppell), Günther: *loc. cit.*, p. 294, pl. cxlix., fig. b; *Thalassoma umbrostigma*, Waite: Rec. Austr. Mus., iv., 1901, p. 41; Jordan and Evermann: *loc. cit.*, p. 300, fig. 129.

The fishes recorded by Ogilby and Waite from Lord Howe Island as *T. trilobatum* are properly referable to *T. purpureum*. *Labrus trilobatus*, Lacépède, is regarded as synonymous with *L. fuscus*, Lacépède, by Jordan and Evermann, which differs from *T. purpureum* in having no scarlet markings on the head.

The identity of *T. umbrostigma* and *T. purpureum* has been suggested by both Klunzinger and Günther, while Waite has shown that they are merely growth stages of the one species.

T. purpureum is abundant on the reefs at Lord Howe Island, while a Norfolk Island example is preserved in the Australian Museum.

Family CHEILODACTYLIDAE.

Genus CHEILODACTYLUS, Lacépède.

Subgenus GONIISTIUS, Gill.

CHEILODACTYLUS (GONIISTIUS) EPHIPIUM, n. sp.

Pl. xliii., fig. 2.

D. xvii. 32-33; A. iii. 8; P. 8, 5-6; V. i. 5; C. 15; L. lat. 62-64; L. tr. 9, 1, 19.

(5) It has been incorrectly recorded as *G. brounriggii*, Waite: Prelim. Rept. Thetis Exped., 1898, p. 61.

Supralateral scales $7\frac{1}{2}$. Depth of body 2.7-2.9 in the length to the hypural joint; head 3.1-3.4 in the same. Eye much shorter than the snout, slightly broader than the inter-orbital space, and 4.2 in the head. Fourth dorsal spine 2.5-2.6, second dorsal ray 2.9-3.08, second anal ray, 1.5-1.6, and longest pectoral ray 1.2-1.3 in the head.

Body compressed, elevated anteriorly. Profile from the snout to the back very oblique, slightly convex on the snout; the nape obtusely keeled. A bony tubercle is present on each side of the snout anteriorly, and another larger one is placed before each eye. Orbit defined above by a granular ridge, and by four granular ossicles which encircle the posterior and inferior margins of the eye. Nostrils large, close together, the anterior with fimbriate margins. Lips very thick, the upper overhanging the lower. Maxillary narrow, extending backward to below the nostrils. Preorbital and preoperculum entire; operculum with a small flat spine. A band of small, cardiform, depressible teeth in each jaw; palate toothless. Body covered with moderately large scales, the exposed surfaces of which are minutely granular. They form sheaths at the bases of the dorsal and anal fins, and extend on to the caudal and pectoral fins. They are very small on the head and breast, and extend forward to between the nostrils on the upper-surface of the head. Lateral line slightly arched, extending over the upper part of the caudal peduncle to the middle of the caudal fin; it is formed of simple tubules placed on small scales, which are intercalated with the others.

Fins.—Dorsal originating above the operculum; the spines increase rapidly in length to the fourth, whence they decrease evenly backward, leaving the margin of the fin not or scarcely excavate. The anterior rays are much longer than the last spine; the others decrease regularly backward to the last. Anal short, falcate, its hinder margin incised. Longest simple pectoral ray not greatly produced, not reaching so far back as the adpressed ventrals, which reach nearly or quite to the vent. Caudal forked.

Colour.—Light-brown in formaline with oblique darker cross-bands. An indefinite dark bar extends from the nape to behind the operculum; a second broad band extends obliquely backward from the anterior third of the spinous dorsal to the middle of the side; a third covers the greater part of the remainder of the back, and encloses three large light spots below the soft dorsal. A blackish mark surrounds the eye and extends forward on to the snout: sides of head with dark reticulating lines enclosing lighter spots. Breast and caudal fin with some very indefinite greyish ocelli. Spinous dorsal blackish, the soft portion with a median lighter

band. Anal, pectorals, and ventrals blackish, lighter in the larger specimen.

Described from two specimens 290 and 348 mm. long from the snout to the end of the middle caudal rays, the smaller of which is figured and is selected as the type. They are closely allied to several of the species of *Cheilodactylus* which have more than thirty dorsal rays, but the disposition of their colour-marking distinguishes them from all.

Loc.—The larger example was obtained at Lord Howe Island by Mrs. T. Nichols, while the other was secured by Mr. E. Allen at Norfolk Island.

Family AMMODYTIDAE.

Genus BLEEKERIA, Günther.

Bleekeria, Günther: Brit. Mus. Cat. Fish., iv., 1862, p. 387 (*B. kallelepis*, Günther); Jordan: Proc. U.S. Nat. Mus., xxx., 1906, p. 716.

This genus apparently differs from *Ammodytes* only in having no free longitudinal fold of skin along each side of the ventral surface. A critical comparison of the specimen described below with European examples of *A. tobianus*, Linnaeus, fails to reveal any other generic differences.

BLEEKERIA VAGA, n. sp.

Pl. xliii., fig. 1.

Br. vii.; D. 48; A. 22; P. 16; C. 15; L. lat. 107 + 5; L. tr. 3, 1, 18.

Head, from the premaxillary symphysis to the end of the opercular lobe, 4·3 in the length to the hypural joint. Depth of the body 2·1 in the head. Eye a little wider than the bony interorbital width, half as long as the snout, and 6·8 in the head. Pectoral fin 2·5, fourth dorsal ray 4·5, and third anal ray 3·2 in the head.

Body subcylindrical, a little compressed, thickest in the middle of its length and tapering at each end. Snout pointed, the mandible projecting and conical anteriorly. Maxillary reaching to below the anterior margin of the eye, pointed behind, and entirely hidden by the preorbital. Lips broad. Nostrils minute simple openings, supero-lateral. Eye with a well-developed adipose lid. Angles of the preoperculum and operculum expanded into broad lobes, which are produced backwards. Head naked, with a subcutaneous muciferous system opening into minute pores, which are largest on the limb of the preoperculum. Jaws and palate without teeth; a large bony knob at the symphysis of the premaxillaries, and a smaller one on the mandible. Gill-openings very wide, the membranes free from the isthmus,

and the slit between them extending forward to below the eye. No longitudinal skin-fold on the side of the abdomen. A skinny, pointed lobe behind the operculum above the base of the pectoral; vent well behind the middle of the body, with a rounded flap covering the urinogenital orifice.

Scales.—Body covered with scales, which are largely rudimentary and enveloped in skin-folds extending obliquely across the body. A longitudinal row at the base of the dorsal fin is differentiated from the following two or three between it and the lateral line; the row directly above the lateral line is marked with a vertical tubule on each scale posteriorly, but the tubules become small and interrupted, and finally disappear anteriorly. Scales of the sides completely enveloped in the skin-folds, those of the ventral surface free. Scales cover the base of the caudal fin and extend up between the rays. Lateral line formed of simple tubes extending over 107 scales, subparallel with the back for the greater part of its length, and terminating on the upper part of the caudal peduncle.

Fins.—Dorsal and anal fins placed in shallow grooves. Dorsal originating behind the base of the pectoral and formed of slender, subequal rays, most of which are bifurcate; the third and fourth are higher than those immediately following them, but the succeeding ones gradually increase in length again. Anal originating about midway between the base of the pectoral and the end of the caudal fin, and terminating well behind the end of the dorsal; its third ray is the longest, the next two or three decrease rapidly, and succeeding ones become gradually shorter. Pectoral pointed, the fourth upper ray longest; it can be received into a depression in the side when adpressed. Caudal deeply forked.

Colour.—Uniform sandy-yellow in formaline, the opercles blackish.

Described and figured from a specimen 166 mm. long. It is closely allied to *B. gilli*, Bean,⁽⁶⁾ and may be identical with that species, but has 112 instead of 97 scales between the origin of the lateral line and the hypural joint, and 3, 1, 18 across the middle of the body instead of 3, 14 transverse rows.

Loc.—Lord Howe Island; collected for the Trustees of the Australian Museum by Mrs. Thomas Nichols. The *habitat* of *B. gilli* is unknown, but the specimens on which the species was founded were supposed to have been collected in the Pacific by Dr. Stimpson.

(6) Bean: Proc. U.S. Nat. Mus., xvii., 1895, p. 629.

Family BLENNIIDAE.

Genus GILLIAS, Evermann and Marsh.

Gillias, Evermann and Marsh: Rept. U.S. Fish. Comm., xxv., 1899, p. 357 (*G. jordani*, Everm. and Marsh).

This genus is usually regarded as synonymous with *Tripterygion*, Risso, but it apparently differs in having the head more or less scaly, while scales cover the abdomen and breast.

GILLIAS SQUAMICEPS, n. sp.

Pl. xli., fig 1.

Tripterygion nigripenne, Waite: Rec. Austr. Mus., v., pt. 3, 1904, pp. 182, 224 (not *T. nigripenne*, Cuv. and Val.).

D. iv. xv. 11-12; A. 22-23; P. 8-9+7-8; V. 2; C. 13; L. lat. 21-24; Scales 34-36; L. tr. $2\frac{1}{2}$, 1, 7.

Head 2.9-3.4 in the length to the hypural joint. Eye longer than the snout, 3.1-3.3 in the head. Snout 1.1-1.2 in the eye. Depth 1.5-1.7 in the head.

Body elongate, tapering from the head to the caudal peduncle. Head pointed anteriorly, subcylindrical posteriorly. Snout conical, the jaws equal. Mouth slightly oblique, the maxilla expanded posteriorly and reaching almost to below the middle of the eye. A small nasal tentacle, and a larger branched one on the upper portion of the eye.

Teeth in broad bands in both jaws anteriorly, becoming uniserial laterally, the outer row enlarged, curved, cardiform; a curved row of minute teeth on the vomer, the rest of the palate apparently toothless.

Scales extending forward to the hinder orbital borders on the upper-surface of the head and on to the opercles and cheeks below, where they are arranged in about five rows; in the smallest specimen the cheeks are naked. Rows of minute, spine-like cilia are present around the orbital margins, across the nape, and on the preopercular and suprascapular margins; these are most developed in the largest specimen. Entire body, including the abdomen, breast, and pectoral base, covered with large, strongly ctenoid scales. The lateral line is almost straight and extends to the vertical of the anterior dorsal ray. It is separated by two series of scales from the median row on the side of the tail; each of these has its margin excavated into a deep notch, the notches extending forward a varying distance in advance of the end of the lateral line. There are $2\frac{1}{2}$ scales between the lateral line and the back, and 7 between it and the anal fin.

Fins.—First dorsal commencing just behind the vertical of the preoperculum; the first spine is the longest, the others decreasing backwards. Second dorsal originating behind the

base of the pectoral; its spines increase in length to the eighth or ninth, and then decrease again. The third dorsal is highest anteriorly and is composed of simple rays. Anal fin much longer than the second dorsal and formed of simple rays, which are curved and thickened towards their tips; they increase in length to about the twentieth, and the last is behind the vertical of the hinder dorsal ray. Pectoral large, the longest upper simple ray reaching well beyond the origin of the anal; the six or seven lower rays are simple and thickened, those above them are bifid. Ventrals jugular, each consisting of two simple free rays, the inner of which is the longest. Caudal rounded, the two outer rays of each side simple, the others bifid.

Colour.—Light-grey in alcohol, each scale with a dark margin of microscopic black dots; five dark cross-bars descend from the back to the middle of the sides, where they divide into irregular intermediate bands on the lower half of the body. A broad dark bar crosses the cheek from the eye, and there are several less definite ones crossing the lips. Anterior dorsal almost black, second and third dorsals crossed by irregular dark oblique bars. Anal with about eleven dark spots at its base, from which oblique bars extend on to the fin; a broad white marginal band. Pectorals and caudal with numerous irregular brownish cross-bars.

Described from three specimens 25-55 mm. long, the largest of which is figured and is selected as the type. Two of these are the specimens which were doubtfully recorded by Waite as *T. nigripenne*, but his recent paper upon some species of *Tripterygion* ⁽⁷⁾ proves that they cannot be identified with that species. They are allied to *G. striaticeps*, Ramsay and Ogilby, ⁽⁸⁾ but consistently differ in the increased number of spines in the first and second dorsal fins.

Loc.—The two larger examples were collected at Lord Howe Island, and the smallest at Norfolk Island, taken by Mr. A. M. Lea.

Family TETRAODONTIDAE.

Genus SPHEROIDES, Dumeril.

SPHEROIDES ALTIPINNIS, Ogilby.

Tetraodon altipinnis, Ogilby: Rec. Austr. Mus., i., pt. 6, 1891, p. 110.

Amblyrhynchotus oblongus, Waite: Rec. Austr. Mus., iii., 1900, p. 207 (not *Tetraodon oblongus*, Bloch.).

Tetraodon hypselogeneion, Waite: loc. cit., v., 1903, p. 38 (not *Tetraodon hypselogencion*, Bleeker).

(7) Waite: Rec. Cantb. Mus., ii., pt. 1, 1913, p. 1.

(8) Ramsay and Ogilby: Proc. Linn. Soc. N.S. Wales, (2), iii., 1888, p. 419.

Spheroides altipinnis, *S. oblongus*, and *S. hypselogeneion*, Waite: *loc. cit.*, v., 1904, p. 218.

Tetrodon pleurogramma, Regan: *Proc. Zool. Soc.*, 1902 (1903), ii., p. 300, pl. xxiv., fig. 2.

Spheroides pleurogramma, McCulloch: *Rec. W. Austr. Mus.*, i., 1904, p. 227.

The typical specimen of *S. altipinnis* is in the Australian Museum collection: it is stuffed and in very poor condition, but such of its characters as are retained indicate that it is the adult form of the species described and figured by Regan as *S. pleurogramma*. A series of specimens of different sizes shows that the colour-markings change with growth, larger examples losing the dark lateral band and the cheek-markings which are characteristic of younger specimens. According to Ogilby's description, the type had no lateral fold on the tail, but this appears to be incorrect.

Waite recorded these adult and young forms from Lord Howe Island as *S. oblongus*, Bloch, and *S. hypselogeneion*, Bleeker; but the species bears little resemblance to the former, while according to Regan it also differs from the latter.

Loc.—The Australian Museum includes specimens from near Sydney, New South Wales: Moreton Bay, Queensland; and Lord Howe Island. The South Australian Museum possesses an example taken by Mr. Lea at Norfolk Island.

EXPLANATION OF PLATES.

PLATE XLI.

- Fig. 1. *Glyphisodon sordidus*, Forskal. A specimen 74 mm. long, from the New Hebrides.
 ,, 2. *Congermuraena howensis*, n. sp. A specimen 143 mm. long, from Lord Howe Island.
 ,, 3. *Atypichthys latus*, n. sp. A specimen 128 mm. long, from Norfolk Island.

PLATE XLII.

- Fig. 1. *Gillias squamiceps*, n. sp. Type, 55 mm. long, from Lord Howe Island.
 ,, 2. *Labracoglossa nitida*, n. sp. Type, 157 mm. long, from Lord Howe Island.

PLATE XLIII.

Paracaesio pedleyi, n. sp. Type, 336 mm. long, from Lord Howe Island.

PLATE XLIV.

- Fig. 1. *Bleekeria vaya*, n. sp. Type, 166 mm. long, from Lord Howe Island.
 ,, 2. *Cheilolactylus ephippium*, n. sp. Type, 348 mm. long, from Norfolk Island.